



Army Perspective on the Economics of Modeling & Simulation

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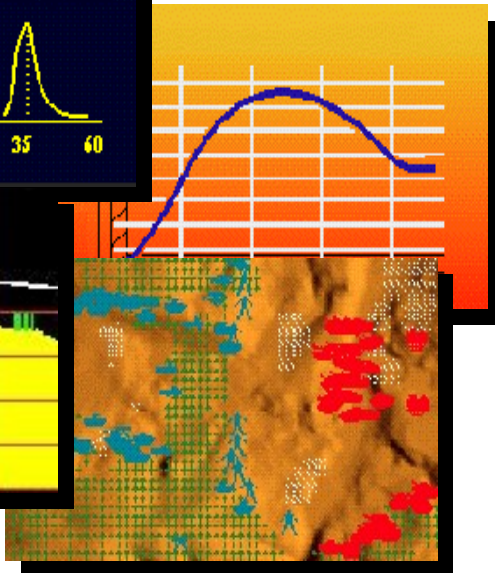
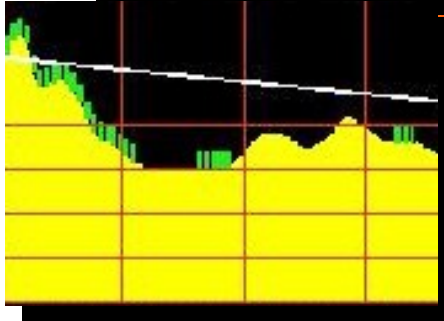
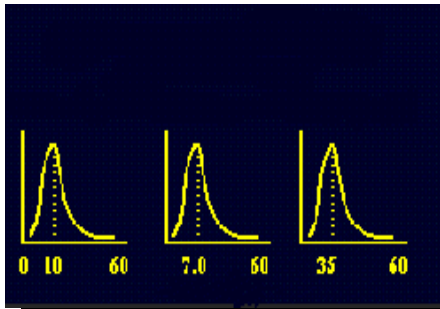
What benefits are derived by your service from the use of Modeling and Simulation?



Software in the Loop

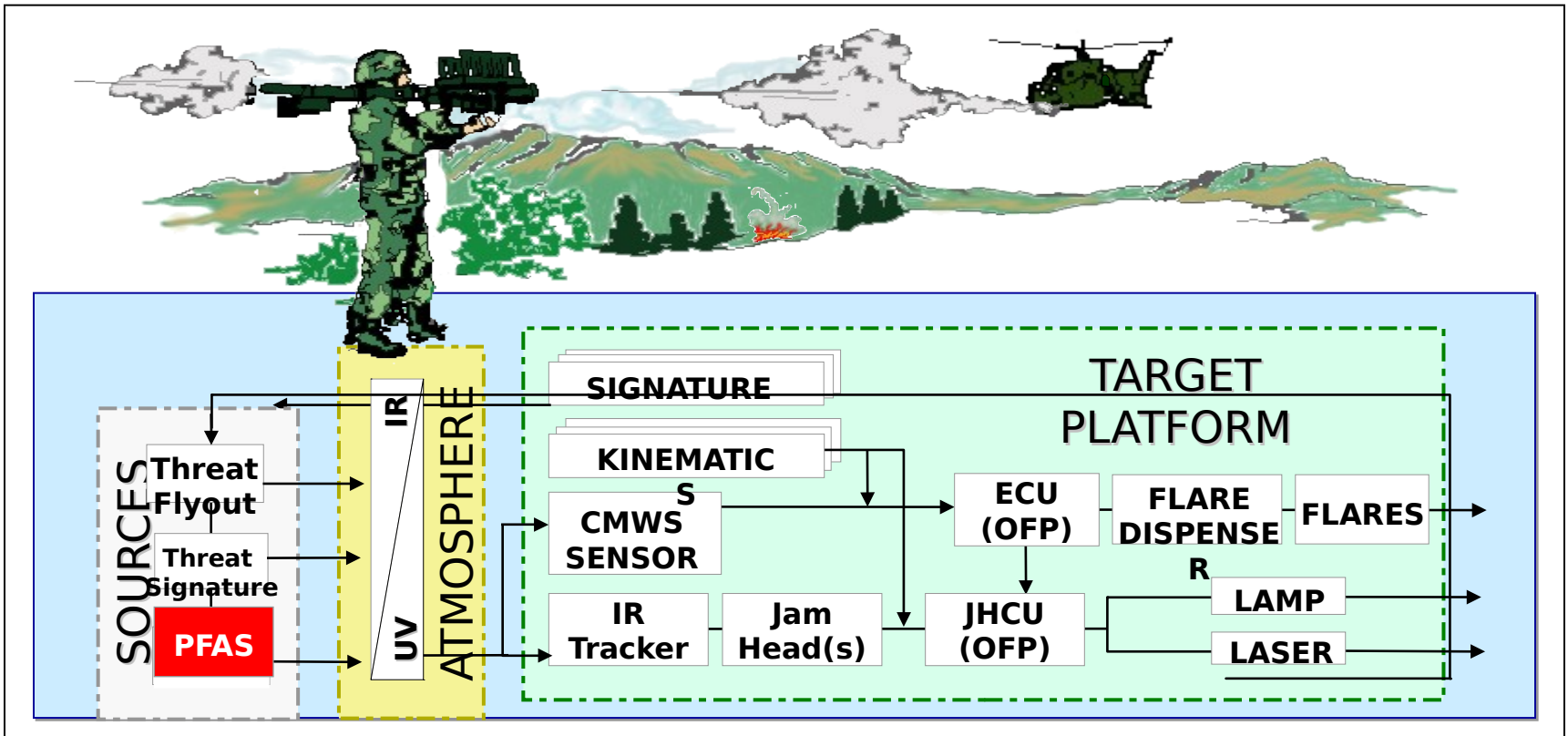
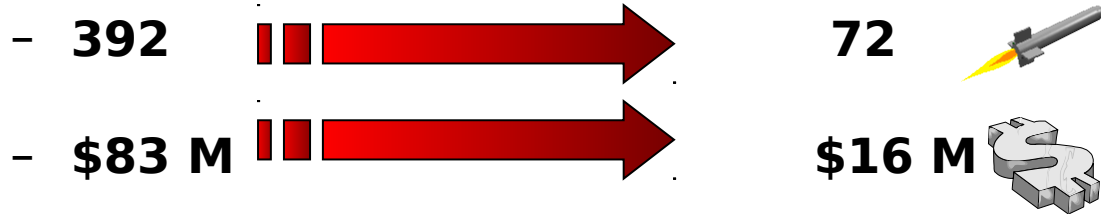


- Prior to an air-to-air missile's first intercept test a M&S driven test of the embedded software determined the missile would miss
- First test was postponed to correct deficiency
- Instrumentation readings later determined missile would have missed
- Impact to Army:
 - Savings from a test that would have failed





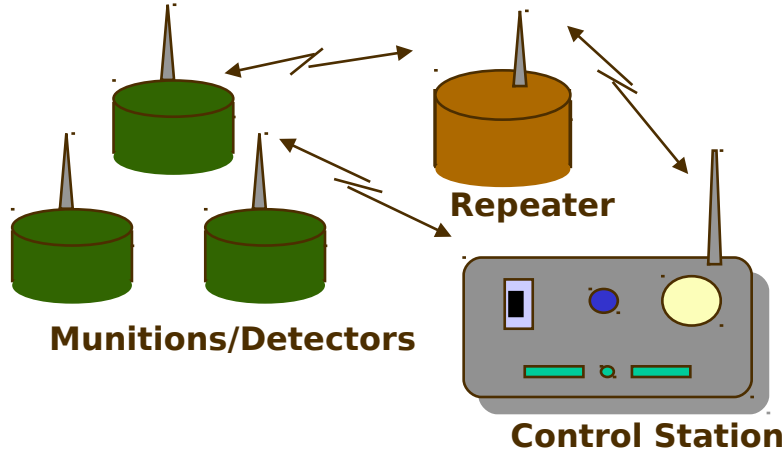
Combination Simulation and Live Fire Testing





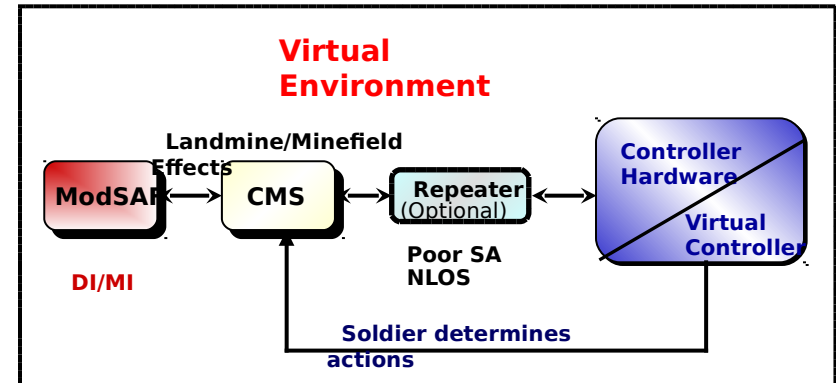
M&S In Support Of Anti-Personnel Mine Research

APL-A NSD-A New Concept *



- * - Alternative to current M14/M16
- Man-In-The-Loop unless Non-Lothal

Training and Operations



CMS - Comprehensive Mine Simulator
ModSAF - Modular Semi-Automated Forces
DI/MI - Dismounted Infantry/Mechanize Infantry
SA - Situational Awareness
NLOS - Non-Line of Sight

Presidential Directive

- Find suitable replacements for US anti-personnel landmines (APL-A).
- End use of all APL outside Korea by 2003
- Aggressive search for APL- A to have solutions for Korea by FY 06

Impact:

- **Cost Avoidance**
- **Short timelines to meet national objectives**

PM: 'We could not have met the Presidential Directive timelines without M&S'

Some PoF Success Stories



JSTARS

- Analysis showed Commercial CCA OK

\$1.2M Saved



BFIST

- Identified potential thermal & vibration problems

Increase Reliability



ARC-210 Radio

- Identified weak link in design & verified

\$27M Cost Avoidance



AEC & Linebacker

Design Change Recommended

- CCA & Box-level analyses
- Potential technology expansion



Comanche

- Air Force analysis showed commercial ICs OK

\$50M Savings



& Weight Reduced

Design Changes Implemented

THAAD

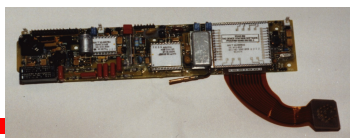
- PoF analysis on Plastic Ball Grid Array

Evaluate New Technology



ICAM

- Corrected Vibration Problem





M&S for Readiness and Sustainability

OSRAP *

- **Model for Estimating Spare Parts Requirements**
- **Spares Needed to Achieve Weapon System Availability At Least Cost**

*** Optimum Stockage Requirements Analysis Program**

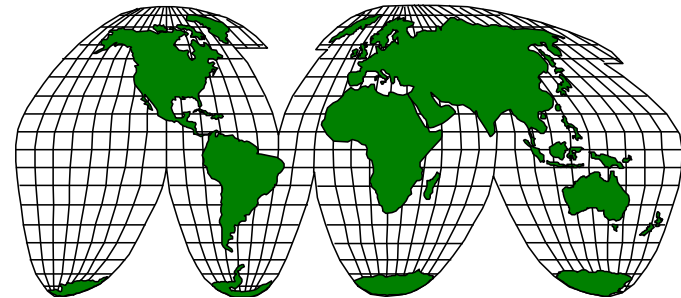
War Reserve Sustainment Stocks



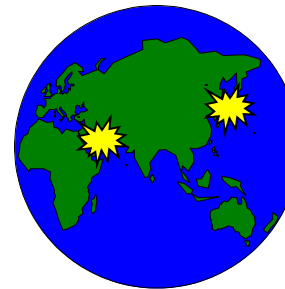
2 MTW

Pre-positioned Brigade Sets

- **Europe**
- **Korea**
- **Kuwait**
- **Afloat**



Deployment Stock Packages



**Go-to-War Requirements for
ASLs**



And the list goes on.....

- **Crusader**
- **Interim Armored Scout Vehicle**
- **UH-60**

....and on and on and....

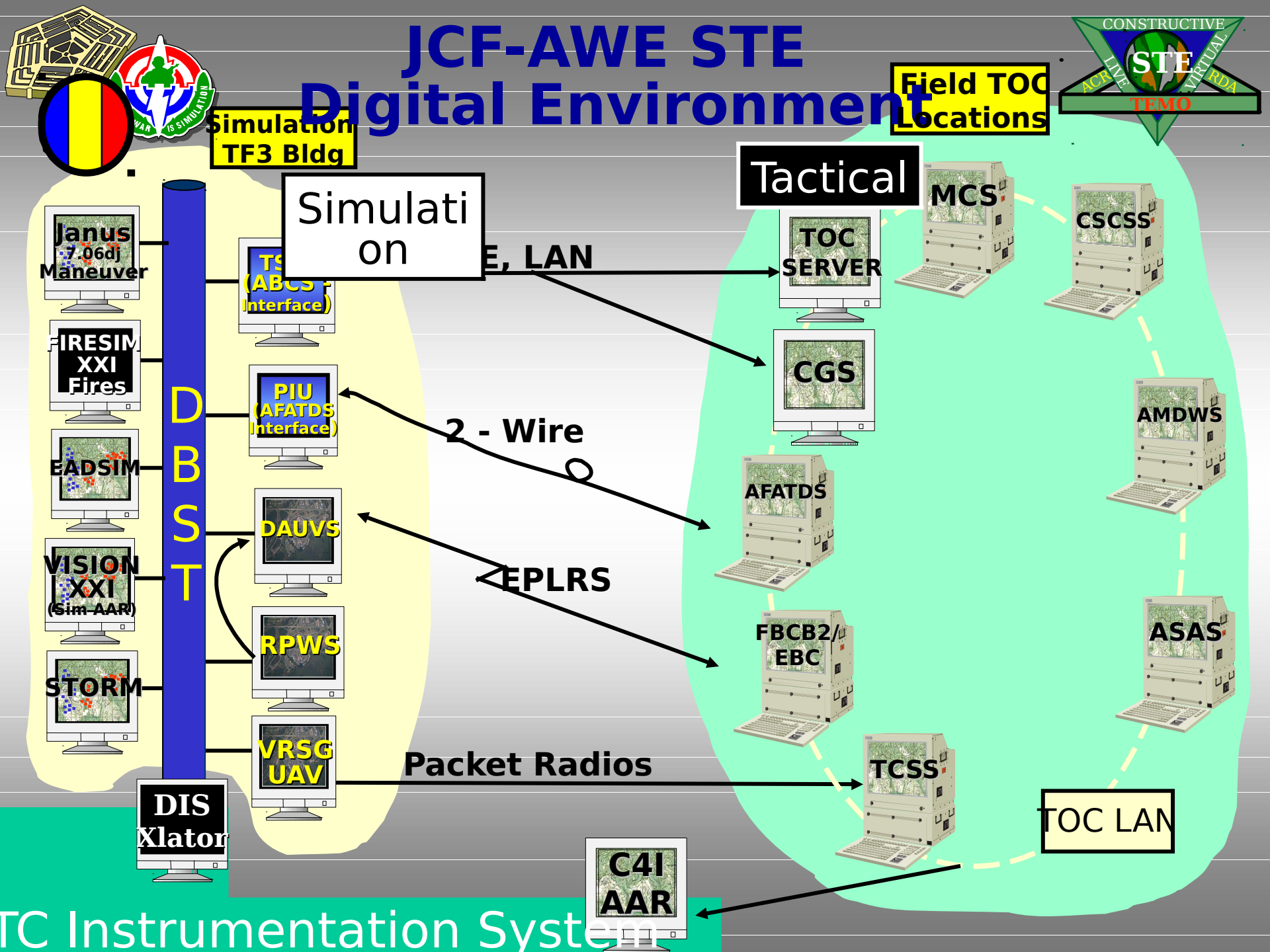


**What additional advantage is
foreseen in the deliberate
management and use of M&S?**

U.S. Army Modeling & Simulation

A Vision for the Future







**What do you see as the particular
costs of M&S?**

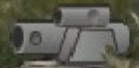


Tactical UAV

Unmanned
Shooter
Platform



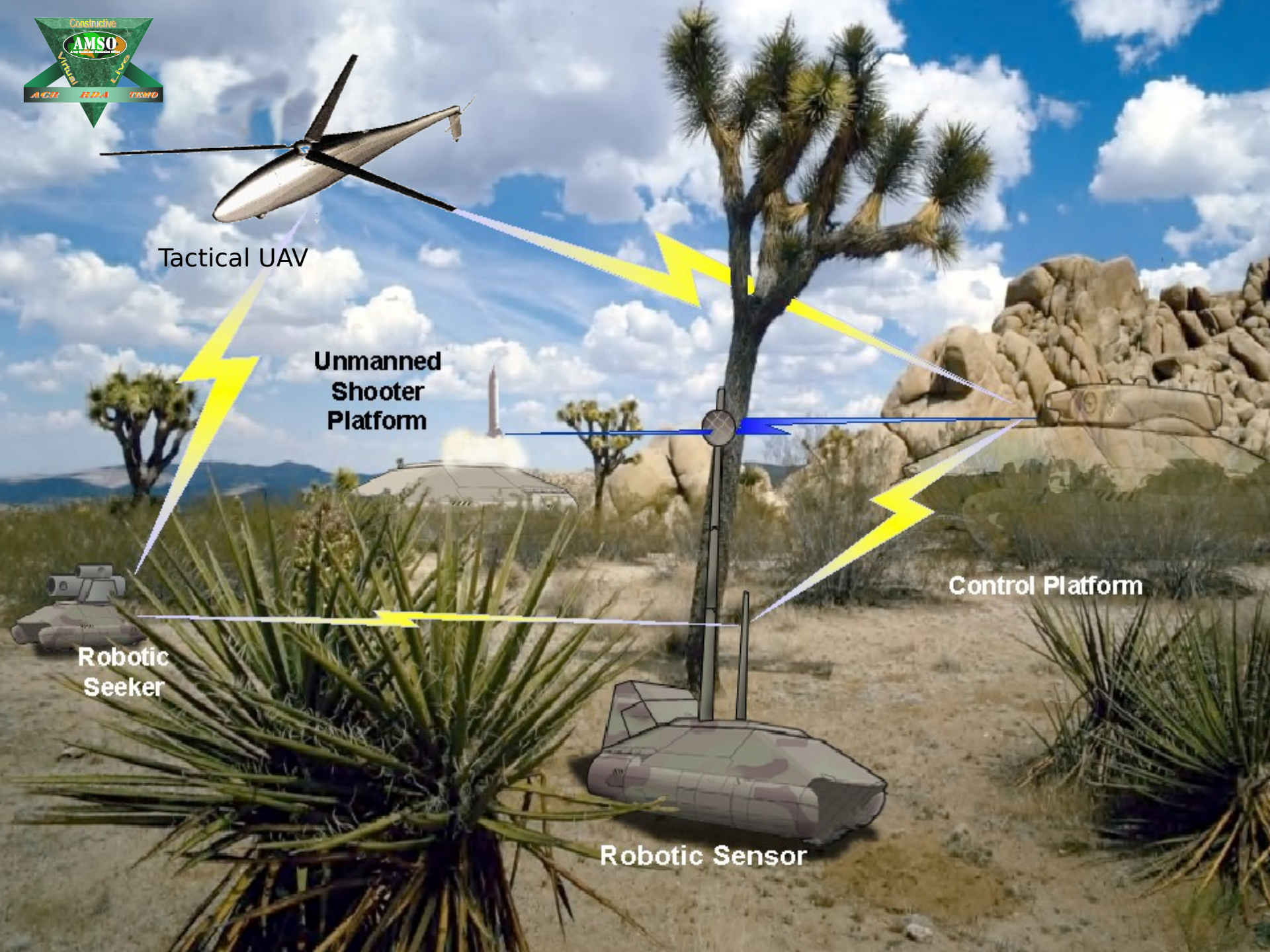
Control Platform



Robotic
Seeker



Robotic Sensor





**How well are the costs, benefits, and
market mechanisms of M&S
understood?**



What are your office's intentions for understanding and affecting the economics of M&S?